

Deliberate Wet-Gap Crossings in Korean Theater of Operations

by LTC Robert E. Dion Jr.

The 2nd Infantry Division/Republic of Korea – U.S. Combined Division is the only permanent forward-deployed division in the U.S. Army, and its mission is to deter aggression from North Korea. Readiness deters aggression, and one area the division demonstrates readiness in is by maintaining operational-plan proficiency in deliberate wet-gap crossings – a critical capability every rotational armored brigade combat team (ABCT) that deploys to Korea plans and executes.

The division has an advantage over every division in the U.S. Army by having operational control of an echelons-above-brigade engineer battalion with a multi-role bridge company (MRBC). The 11th Engineer Battalion, with 814th MRBC, activated in Korea in October 2017 under operational control of 2nd Infantry Division to fill a critical capability gap. This permanent relationship allows the division to plan and execute a wet-gap crossing exercise year-round.

In April 2019, 3rd ABCT, 1st Armored Division, conducted a combined wet-gap crossing with 11th Engineer Battalion – plus, from RoKA, 137th Mechanized Battalion, 16th Mechanized Brigade and a river-crossing company from 6th Engineer Brigade. The 3/1 ABCT successfully planned and executed this exercise by using the six gap-crossing fundamentals of surprise, extensive preparation, flexible planning, traffic management, organization and speed.¹

Surprise

The rugged terrain in Korea consists of many mountains and narrow valleys that limit the number of maneuver corridors. Therefore, most military movements are limited to travel on the existing network of roads and trails. Unfortunately, this limits the element of surprise in a wet-gap crossing because the enemy knows the locations of the likely crossing points. Ideally, planners look for a salient on the enemy side of the crossing area, as this allows friendly forces to mass fires across a wide area into a concentrated section of the enemy. The river-crossing area chosen by 3/1 ABCT met this condition and allowed the assault force to mass fires on the simulated enemy.

To mitigate the limited crossing area options available in Korea, 2nd Infantry Division staff developed an effective deception plan for the exercise. The deception plan was needed because, in the event of a real conflict, the enemy will attempt to track the MRBC's location by using satellites or unmanned aerial vehicles, as the gap crossing cannot occur without this capability. Therefore, planning to employ decoy engineer equipment parks and crossing sites aid the deception plan; elements of the MRBC can deceive the enemy by moving to the decoy location.

Past division exercises have also used 2nd Combat Aviation Brigade to conduct slingload operations to airlift boats and bays to the crossing area. This can aid the element of surprise by airlifting the initial equipment needed to conduct rafting operations while the rest of the equipment moves forward.

Another way to surprise the enemy involves the timing of the gap crossing. The 3/1 ABCT conducted the exercise at dawn to facilitate the professional development of the division and RoKA visitors observing the crossing. However, a night crossing would aid the element of surprise, so planners will consider it for future exercises.

Extensive preparation

The division has an advantage over every unit in the U.S. Army because its Soldiers know exactly where they will fight. The division's leaders and planners used this to their advantage when preparing for the exercise by studying the characteristics of the crossing sites and training for wet-gap crossings replicating the same conditions in which they may fight.

In the weeks preceding the exercise, both the division and brigade conducted leadership professional-development sessions with the staffs and key unit leaders to teach the fundamentals of gap-crossing operations.

These sessions were critical to explaining the doctrinal principles needed to successfully plan and execute a deliberate wet-gap crossing.

A key component of the planning process was conducting a river reconnaissance. Intelligence planners first collected data on the river with weather reports and aerial imagery to determine the best crossing location and characteristics of the terrain. Reconnaissance teams with engineers then collected data on river velocity, water depth, soil types and the conditions of the entry and exit banks. Identification of fording sites were also an important objective of the reconnaissance teams. The 3/1 ABCT highlighted the importance of fording to leaders to ensure they didn't focus only on conducting a wet-gap crossing when a fording site might be nearer.

To validate the plan, 3/1 ABCT conducted full-scale rehearsals prior to the crossing to ensure the sequence and responsibilities were clear. Three days prior to the exercise, 814th MRBC and a bridge platoon from 6th Engineer Brigade (RoKA) conducted rehearsals on rafting and bridging operations, including how to replace a bay damaged by indirect fire. Following the rehearsals, the units were able to reduce the time required to complete the bridge from four hours on the first day down to 80 minutes during the day of execution. An option for rehearsals would be to establish a wet-gap crossing rehearsal site in the rear area to practice prior to the operation. This would increase the chance of a successful operation, especially if the MRBC has not conducted a wet-gap crossing recently.



Figure 1. Members of 814th MRBC conduct rafting operations during rehearsals. (U.S. Army photo by 55th Combat Camera)

Flexible planning

The motto for the exercise was “Kapchi Kapshida,” the Korean words for “We go together!” To the greatest extent possible, the division conducts combined training exercises with its RoKA partners because this is how they will fight. The benefit of conducting a combined wet-gap crossing was realized early in the exercise for 3/1 ABCT.

Low water in the river resulted in boulders in the water that blocked the preferred path for the ribbon bridge. Dive teams from 6th Engineer Brigade (RoKA) marked the locations of boulders to prevent damage to bridging equipment. Engineers then adjusted by turning the bridge away from the rocks, which increased the length of the bridge from 137 meters to 202 meters. Unfortunately, the increased length exceeded the capabilities of 814th MRBC due to the amount of equipment available on-site. The solution was to construct a hybrid bridge using bays from both the U.S. and RoKA bridge units with Korean Augmentation to the U.S. Army soldiers placed in U.S. boats to help with communication.

RoKA uses the standard ribbon bridge (SRB), which is the bridge the U.S. Army used prior to upgrading to the improved ribbon bridge (IRB). For a river velocity up to 0.6 meters per second, the IRB can support a military load class (MLC) of 105 for tracked vehicles, and the SRB can support an MLC of 75.2. The hybrid bridge uses the lower MLC, which was enough to pass 3/1 ABCT tanks.



Figure 2. An M1A2 tank from 3/1 ABCT crosses a hybrid IRB/SRB bridge constructed by members of 814th MRBC and 6th Engineer Brigade (RoKA) during a wet-gap crossing exercise. (U.S. Army photo by LTC Robert Dion)

The 3/1 ABCT also adapted its plan for getting the crossing force across the river based on the capabilities of the attached RoKA armored unit. The 137th Mechanized Battalion (RoKA) is equipped with the K200 infantry fighting vehicle, which is capable of swimming. The updated plan took advantage of this by having the assault force swim across the river, which negated the requirement to conduct rafting operations for the assault force.

During the river reconnaissance, engineers determined the entry and exit bank slope. This revealed that soil type would be an issue during the crossing, exceeding the capabilities of the MRBC to maintain. The 11th Engineer Battalion was able to adjust by assigning the mission to 643rd Engineer Support Company to maintain the banks.

A decision point for the division commander during a wet-gap crossing is when to transition from tactical bridging to line-of-communications bridging (LoC-B). IRBs are designed to be used up to 72 hours. However, these bridges can be used longer, but they require the MRBC to stay on-site to maintain the bridge due to changes in water height and speed. On the other hand, upgrading the site to LoC-B allows the MRBC to move forward on the battlefield.

The 11th Engineer Battalion constructed a 40-meter logistics-support bridge (LSB) over a dry gap on the far side of the river. The LSB can support an MLC of 80 for tracked vehicles.³ Every vehicle from 3/1 ABCT that used the IRB also crossed the LSB, which allowed Soldiers to gain confidence in the bridge systems. In future exercises, the division will construct a floating LSB over a wet gap.



Figure 3. A humvee from 3/1 ABCT crosses a 40-meter LSB over a dry gap constructed by members of 814th MRBC. (U.S. Army photo by LTC Robert Dion)

Traffic management

The terrain in Korea limits the ability for units to plan the crossing area according to doctrine, which is normally two to 2.5 miles on either side of the gap.⁴ To demonstrate the distance required for a gap crossing in Korea, the division-engineer section developed crossing-area graphics depicted on actual terrain. This allowed the staff to see how the crossing area extends when key areas (battalion holding areas, engineer regulating point, engineer equipment park and call forward areas) are planned on restricted terrain.

A decision point for the crossing-area commander (CAC) is when to call forward combat forces to the next holding area and call forward areas. Commanders must consider the current enemy situation at the crossing site to prevent moving forces too soon. This is especially important when deciding when to move forward the MRBC. The Army cannot easily replace military-occupation specialty 12C bridge crewmember personnel and bridge equipment with only four companies in the active Army and 20 in the Army Reserve and National Guard.

Organization

When planning for the exercise, division planners had to determine if a joint operations area (JOA) was needed before the wet-gap crossing could be conducted. "A JOA is an area of land, sea and airspace, defined by a geographic combatant command or subordinate unified commander, in which a [joint force commander] (normally a joint task force) conducts military operations to accomplish a specific mission."⁵ The division may operate in either a noncontiguous area or not be assigned an area of operation due to conducting a follow-and-support mission to RoKA. The establishment of a JOA will allow the division to prepare the crossing area with fires and air support before conducting the gap crossing.

Having clear command-and-control nodes and responsibilities is also critical to a successful gap crossing operation. During this exercise, 3/1 ABCT served as the CAC, and 11th Engineer Battalion was the crossing-area engineer (CAE). As the CAE, 11th Engineer Battalion needed to be co-located with the CAC to assist with planning and ensure both headquarters had the same common operating picture. As CAE, 11th Engineer Battalion ensured that all units involved with conducting engineer operations and moving units within the crossing area had a clear task and purpose, and that they understood the 3/1 ABCT commander's intent. Successful units are the ones that do this, as it allows subordinate units to complete the mission as conditions change.

Engineer forces available to support the gap crossing limited the number of lanes emplaced. Every lead brigade combat team (BCT) requires two crossing lanes to quickly move forces across the gap. The river width and bridging equipment on site prevented emplacing two lanes for this exercise, but future exercises will incorporate planning for a second crossing to exercise the staff in the additional resources and factors required.

During planning for a wet-gap crossing, the division staff must resource BCTs with required assets that are not organic to the unit. Therefore, planners will always remember bridging assets, but other critical capabilities can be overlooked. For example, air- and missile-defense assets on-site can mitigate the risk from air threats; chemical, biological, radiological and nuclear units can conduct decontamination after an attack; mobile, active, electronically scanned array counter-battery radar systems (also known as AN/TPQ-53) can enable counter-fire; and more field-artillery support can assist, firing both high-explosive and obscuration rounds.

Speed

Once a wet-gap crossing operation commences, the enemy knows where the unit is crossing and will do everything it can to stop it. Units do not need to race to the gap because this can lead to failure. The actual crossing is the focus of *speed* as a fundamental.

During the recent exercise, the 3/1 ABCT used the breaching fundamentals (*suppress, obscure, secure, reduce, assault*) to conduct the gap crossing once they reached the river.⁶ A concern when executing these fundamentals was the best way to provide battlefield obscuration. The chemical corps no longer has the capability to provide obscuration, so the unit was left with either smoke pots or those fired from artillery. Artillery-fired obscuration is a good solution, but it is a constant balance between providing obscuration and eliminating the enemy with high-explosive rounds. In addition, the artillery basic loads do not have enough obscuration rounds to obscure the battlefield for the required two to three hours.

Way forward

The 2nd Infantry Division/Republic of Korea – U.S. Combined Division and 11th Engineer Battalion are actively preparing for wet-gap crossing exercises with future rotational ABCTs. The goal of these exercises remains to increase the tactical and technical competency and proficiency of the combined RoK-U.S. forces for this type of operation. With the shift back to decisive-action operations against a peer or near-peer threat, it is critical that leaders and Soldiers have the foundational knowledge needed to execute this complex operation.

LTC Rob Dion assumed command of 11th Engineer Battalion in August 2019. His previous assignments include division engineer, 2nd Infantry Division/RoK-U.S. Combined Division, Camp Humphreys, Korea; program integrator within G-8, Headquarters Department of the Army, Pentagon, Washington, DC; Arroyo Center fellow, RAND Corporation, Santa Monica, CA; brigade S-3, 555th Engineer Brigade, Joint Base Lewis-McChord (JBLM), WA; battalion S-3, 864th Engineer Battalion; and brigade plans officer, 555th Engineer Brigade, JBLM. LTC Dion's military schools include Ranger School, Sapper School and Airborne School. He holds a bachelor's degree in civil engineering from the U.S. Military Academy, West Point, NY; a master's of science degree in civil engineering from the Georgia Institute of Technology; and a master's of science degree in engineering management from the University of Missouri-Rolla (now the Missouri University of Science and Technology). LTC Dion is a registered professional engineer in Missouri, a certified project management professional and a certified construction manager.

Notes

¹ Field Manual (FM) 3-90.12, *Combined-Arms Gap Crossing*, July 2008.

² Technical Manual 5-5420-278-10, *Operator Manual for [IRB] Ramp Bay*, April 8, 2003.

³ FM 3-90.12.

⁴ Ibid.

⁵ FM 3-0, *Operations*, October 2017.

⁶ FM 3-90.12.

Acronym Quick-Scan

ABCT – armored brigade combat team

BCT – brigade combat team

CAC – crossing-area commander

CAE – crossing-area engineer

FM – field manual

IRB – improved ribbon bridge

JBLM – Joint Base Lewis-McChord
JOA – joint operations area
LoC-B – line-of-communications bridging
LSB – logistics-support bridge
MRBC – multi-role bridge company
MLC – military load class
RoKA – Republic of Korea Army
SRB – standard ribbon bridge